

Serial No. 09/651,783

NIP-198

IN THE CLAIMS

1-2. (Canceled)

3. (Currently Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing at least one of  $\text{SF}_6$  and  $\text{NF}_3$  present in the PFC gas by any method selected from the group consisting of hydrolysis, oxidation decomposition, combustion, and thermal decomposition,

washing the gas generated by said decomposition by making said gas contact with at least one of water and an aqueous alkaline solution,

removing decomposition products from said gas washed in said washing step, wherein a waste including a mist remains after said removing of said decomposition products,

removing mist in waste gas resulting from said mist from said waste remaining after the washing, thereby removing to remove PFC decomposition products accompanied with the mist, wherein a gas remains after said removing of said mist from said waste, and

exhausting the gas from which the mist has been removed in the step of removing step said mist from said waste,

Serial No. 09/651,783

NIP-198

wherein said step of removing mist is performed to remove at least one of  $\text{SO}_x$  and  $\text{NO}_x$  accompanying water, which are decomposition products of said at least one of  $\text{SF}_6$  and  $\text{NF}_3$ , from said washed gas, and

wherein said step of removing mist is performed by a mist removal means, such that the removed mist is then drained through a liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said mist removal means are discharged in a form of liquid of a gather of residual mists through a liquid waste outlet provided at a rear stage of said mist removal means installed in the emission side of said gas exhausted in said exhausting step.

4. (Currently Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing at least one of  $\text{SF}_6$  and  $\text{NF}_3$  present in the PFC gas by diluting said at least one of  $\text{SF}_6$  and  $\text{NF}_3$  with nitrogen, and contacting the diluted gas with a decomposition catalyst in the presence of air and water,

washing the gas generated by said decomposition by making said gas contact with at least one of water and an aqueous alkaline solution,

Serial No. 09/651,783

NIP-198

removing decomposition products from said gas washed in said washing step, wherein a waste including a mist remains after said removing of said decomposition products,

removing ~~mist in waste gas resulting from~~ said mist from said waste remaining after the washing, thereby removing ~~to~~ remove PFC decomposition products accompanied with the mist, wherein a gas remains after said removing of said mist from said waste, and

exhausting the gas from which the mist has been removed in the step of removing ~~step~~ said mist from said waste,

wherein said step of removing mist is performed to remove at least one of SO<sub>x</sub> and NO<sub>x</sub> accompanying water, which are decomposition products of said at least one of SF<sub>6</sub> and NF<sub>3</sub>, from said washed gas, and

wherein said step of removing mist is performed by a mist removal means, such that the removed mist is then drained through a liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said mist removal means are discharged in a form of liquid of a gather of residual mists through a liquid waste outlet provided at a rear stage of said mist removal means installed in the emission side of said gas exhausted in said exhausting step.

Serial No. 09/651,783

NIP-198

5-10. (Canceled)

11. (Currently amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing a PFC gas which contains at least one of  $\text{SF}_6$  and  $\text{NF}_3$  by any method selected from the group consisting of hydrolysis, oxidation decomposition, combustion, and thermal decomposition,

washing the decomposed gas, which contains PFC decomposition products including HF and at least one of  $\text{SO}_x$  and  $\text{NO}_x$  generated by said decomposition, by making said decomposed gas contact with at least one of water and an aqueous alkaline solution to make the PFC decomposition products be absorbed therein, and

removing decomposition products from said decomposed gas washed in said washing step, wherein a waste including a mist remains after said removing of said decomposition products,  
and

exhausting waste gas resulting from the washing, wherein said step of exhausting the waste gas resulting from the washing is performed after removing said mist from said waste remaining after the washing, thereby mist in the waste gas for

Serial No. 09/651,783

NIP-198

removing the PFC decomposition products accompanied with the mist, and

wherein said mist is removed from said waste by a mist removal means, such that the removed mist is then drained through a liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said mist removal means are discharged in a form of liquid of a gather of residual mists through a liquid waste outlet provided at a rear stage of said mist removal means installed in the emission side of said gas exhausted in said exhausting step.

12. (Previously Presented) A method of treating perfluorocompound (PFC) gas according to claim 11, wherein said decomposition of the PFC gas is performed by hydrolysis, including contacting the PFC gas with a decomposition catalyst in the presence of air and water.

13. (Currently amended) A method of treating perfluorocompound (PFC) gas comprising the sequential steps of:

decomposing at least one of  $\text{SF}_6$  and  $\text{NF}_3$  present in the PFC gas by any method selected from the group consisting of

Serial No. 09/651,783

NIP-198

hydrolysis, oxidation decomposition, combustion, and thermal decomposition;

washing the gas generated by said decomposition with water;

removing decomposition products from said gas washed in said washing step, wherein a waste including a mist remains after said removing of said decomposition products,

removing said mist from the exhaust said waste of said water-washed gas by a cyclone, wherein a gas remains after said removing of said mist from said waste; and

exhausting the gas of ~~said mist removed gas~~ from which said mist has been removed from said waste of said water-washed gas, outside the treating system,

wherein said step of removing mist is performed by said cyclone such that the removed mist is then drained through a liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said cyclone are discharged in a form of liquid of a gather of residual mists through a liquid waste outlet provided at a rear stage of said cyclone installed in the emission side of said gas exhausted in said exhausting step.

Serial No. 09/651,783

NIP-198

14. (Previously Presented) A method of treating perfluorocompound (PFC) gas according to claim 13, wherein said removed mist is collected and retained in a tank as an HF-containing wastewater before discharging outside the treatment system.

15. (Canceled).

16. (Previously presented) A method of treating perfluorocompound (PFC) gas according to claim 13, wherein said cyclone comprises any material selected from the group consisting of a vinyl chloride and an acrylate resin.

17. (Currently amended) A method of treating perfluorocompound (PFC) gas, wherein at least one of  $\text{SF}_6$  and  $\text{NF}_3$  in said PFC gas is decomposed, comprising the steps of:

\_\_\_\_\_ a PFC decomposing process, including decomposing the PFC gas by contacting the  $\text{SF}_6$  and  $\text{NF}_3$  with a decomposition catalyst in the presence of nitrogen-diluted air and water,

a toxic component decomposing process, including decomposing a toxic component produced in the PFC decomposing process by a toxic component decomposition catalyst,

Serial No. 09/651,783

NIP-198

a washing process, including washing the gas produced in said toxic component decomposition process by contacting the generated gas with at least one of water ~~ad alkaline aqueous~~ and an alkaline aqueous solution, and

a decomposition product removal process, including removing decomposition products from said gas washed in said washing process, wherein a waste including a mist remains after said decomposition product removal process, and

a mist removal process, including removing a mist involved in the gas processed by said mist from said waste remaining after said washing process,

wherein said mist removal process is performed by a mist removal means, such that the removed mist is then drained through a liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said mist removal means are discharged in a form of liquid of a gather of residual mists through a liquid waste outlet provided at a rear stage of said mist removal means installed in the emission side of said gas exhausted in said exhausting step.